

CPC**COOPERATIVE PATENT CLASSIFICATION****A01C**

PLANTING; SOWING; FERTILISING (combined with general working of soil [A01B 49/04](#); parts, details or accessories of agricultural machines or implements, in general [A01B 51/00](#) to [A01B 75/00](#); {apparatus for spreading sand or salt [E01C](#); sowing and fertilising with aircraft [B64D 1/16](#) to [B64D 1/20](#)})

A01C 1/00

Apparatus, or methods of use thereof, for testing or treating seed, roots, or the like, prior to sowing or planting (chemicals therefor [A01N 25/00](#) to [A01N 65/00](#){ irradiation in general [B01J 19/08](#)})

A01C 1/005

- . {Potato seed cutters}

A01C 1/02

- . Germinating apparatus; Determining germination capacity of seeds or the like ([germinating in preparation of malt \[C12C 1/027\]\(#\)](#))

A01C 1/025

- .. { Testing seeds for determining their viability or germination capacity}

A01C 1/04

- . Arranging seeds on carriers, e.g. on tapes, on cords { Carrier compositions}

A01C 1/042

- .. {Tapes, bands or cords}

A01C 1/044

- .. {Sheets, multiple sheets or mats}

A01C 1/046

- .. {Carrier compositions}

A01C 1/06

- . Coating or dressing seed {(encapsulated embryos or artificial seeds [A01H 4/006](#); Seed coating compositions [C09D](#))}

A01C 1/08

- . Immunising seed

A01C 3/00

Treating manure; Manuring ({ ploughs with additional arrangements for putting manure under the soil [A01B 17/002](#); dung forks [A01D 9/00](#); { treating of waste water, sewage or sludge [C02F](#)} organic fertilisers from waste or refuse [C05F](#))

A01C 3/02

- . Storage places for manure, e.g. cisterns for liquid manure; Installations for fermenting manure ([sewerage structures \[E03F 5/00\]\(#\); silos, bunkers \[E04H 7/22\]\(#\)](#))

A01C 3/021

- .. {for composted manure}

A01C 3/023

- .. {Digesters}

A01C 3/025

- .. {with heat recuperation means}

A01C 3/026

- .. {with mixing or agitating devices}

A01C 3/028

- .. {Covers, roofs or other structures for covering manure storage places (production of methane or biogas [C02F 11/04](#); coverings for swimming or splash baths or pools [E04H 4/10](#))}

A01C 3/04

- . Manure loaders ([loaders in general \[B65G\]\(#\)](#))

A01C 3/06

- . Manure distributors, e.g. dung distributors

A01C 3/063

- .. {Side-spreaders}

- A01C 3/066 . . {Spreading by using worm or screw conveyors}
- A01C 3/08 . . for manure already laying on the soil

A01C 5/00 Making or covering furrows or holes for sowing, planting or manuring

- A01C 5/02 . Hand tools for making holes for sowing, planting or manuring ([transplanting devices for trees A01G 23/02](#))
- A01C 5/04 . Machines for making or covering holes for sowing or planting
- A01C 5/045 . . {with [piercing buckets \(devices for laying-out or removing protective coverings for plants A01G 13/02\)](#)}
- A01C 5/06 . Machines for making or covering drills or furrows for sowing or planting ({[seeders depositing seeds in rows A01C 7/08](#); [ploughs for making ridges A01B 13/02](#); [lifting devices for agricultural machines A01B 63/00](#)})
- A01C 5/062 . . {Devices for making drills or furrows}
- A01C 5/064 . . . {with rotating tools}
- A01C 5/066 . . {Devices for covering drills or furrows}
- A01C 5/068 . . . {Furrow packing devices, e.g. press wheels}
- A01C 5/08 . Machines for both manuring and sowing or both manuring and planting

A01C 7/00 Sowing ({[with centrifugal wheels A01C 17/00](#)} [arrangements for driving working parts A01C 19/00](#))

- A01C 7/002 . {Dibble seeders}
- A01C 7/004 . {using liquid seeding techniques}
- A01C 7/006 . {Minimum till seeding}
- A01C 7/008 . {Sod or grassland seeding ([A01C 7/08 takes precedence](#))}
- A01C 7/02 . Hand sowing implements ({[fertiliser distributors for hand use A01C 15/02](#); [tools for cultivation A01G 1/12](#)})
- A01C 7/04 . Single-grain seeders with or without suction devices ({[regulation A01C 7/10](#); [for quantities of seed A01C 7/18](#)})
- A01C 7/042 . . {using pneumatic means}
- A01C 7/044 . . . {Pneumatic seed wheels}
- A01C 7/046 {with perforated seeding discs}
- A01C 7/048 . . {Seed tape planters}
- A01C 7/06 . Seeders combined with fertilising apparatus ({[conducting and depositing seed A01C 7/20](#); [apparatus for two kinds of fertiliser A01C 15/00](#); [combinations with soil working tools A01B 49/04](#)})
- A01C 7/08 . Broadcast seeders; Seeders depositing seeds in rows ({[machines for making furrows A01C 5/06](#); [combination of seed machines with other soil-working tools A01B 49/06](#);

- foldable apparatus [A01B 73/00](#))}
- A01C 7/081 .. {Seeders depositing seeds in rows using pneumatic means}
- A01C 7/082 ... { Ducts, distribution pipes or details thereof for pneumatic seeders
(non-pneumatic seed pipes [A01C 7/206](#))}
- A01C 7/084 ... { Pneumatic distribution heads for seeders}
- A01C 7/085 .. {Broadcast seeders}
- A01C 7/087 .. {Tramlining}
- A01C 7/088 .. {Sectional seeding}
- A01C 7/10 .. Devices for adjusting the seed-box {Regulation of machines for depositing quantities at intervals}
- A01C 7/102 ... {Regulating or controlling the seed rate}
- A01C 7/105 {Seed sensors}
- A01C 7/107 ... {Calibration of the seed rate}
- A01C 7/12 .. Seeders with feeding wheels
- A01C 7/121 ... {for sowing seeds of different sizes}
- A01C 7/122 {using more than one feeding wheel; using double-run feeding wheels}
- A01C 7/123 ... {Housings for feed rollers or wheels}
- A01C 7/124 {with top delivery of the seeds}
- A01C 7/125 {with bottom delivery of the seeds}
- A01C 7/126 ... {Stubbed rollers or wheels}
- A01C 7/127 ... {Cell rollers, wheels, discs or belts}
- A01C 7/128 {Cell discs}
- A01C 7/14 ... Seeders with spoon or bucket wheels
- A01C 7/16 .. Seeders with other distributing devices, e.g. brushes, discs, screws, slides ({with distributing slots [A01C 15/06](#); with slides [A01C 15/124](#); with chains [A01C 15/18](#))}
- A01C 7/163 ... {Gravity distributors}
- A01C 7/166 ... {Centrifugal distributors (pneumatic distributors [A01C 15/04](#))}
- A01C 7/18 . Machines for depositing quantities of seed at intervals {(dibble seeders [A01C 7/002](#); single-grain seeders [A01C 7/04](#); regulation [A01C 7/102](#); ridge marking [A01B 69/02](#))}
- A01C 7/185 .. {Foot valves}
- A01C 7/20 . Parts of seeders for conducting and depositing seed {(combined with fertilising apparatus [A01C 7/06](#))}
- A01C 7/201 .. {Mounting of the seeding tools}
- A01C 7/203 ... {comprising depth regulation means}
- A01C 7/205 ... {comprising pressure regulation means}
- A01C 7/206 .. {Seed pipes}
- A01C 7/208 .. {Chassis; Coupling means to a tractor or the like; Lifting means; Side markers (hoppers for seeders or spreaders [A01C 15/006](#))}
- A01C 9/00** **Potato planters** ({planting by hand [A01C 7/02](#); combinations with soil working tools [A01B 49/04](#))}

- A01C 9/02 . with conveyer belts
- A01C 9/04 . with bucket wheels {(with other distributing devices [A01C 9/08](#))}
- A01C 9/06 . with piercing or grasping devices
- A01C 9/08 . with other distributing devices e.g. flaps, screws, horizontal turning plates {(with bucket wheels [A01C 9/04](#))}
- A01C 11/00 Transplanting machines** ({hand sowing [A01C 7/02](#)}; carriers for supporting persons [A01B 75/00](#); transplanting devices for trees [A01G 23/02](#))
- A01C 11/003 . {for aquatic plants; for planting underwater, e.g. rice}
- A01C 11/006 . {Other parts or details or planting machines}
- A01C 11/02 . for seedlings
- A01C 11/025 . . {Transplanting machines using seedling trays; Devices for removing the seedlings from the trays}
- A01C 11/04 . for deeper setting or shifting of plants
- A01C 13/00 Machines or apparatus for consolidating soil around plants**
- A01C 14/00 Methods or apparatus for planting not provided for in other groups of this subclass**
- A01C 15/00 Fertiliser distributors** (7/06 takes precedence; {combined with seeders [A01C 7/06](#)}; arrangements for driving working parts [A01C 19/00](#); {harrows with special additional arrangements [A01B 19/00](#)}; sand, gravel or salt spreaders for roads [E01C 19/20](#))
- A01C 15/001 . {with slowly turning wheels}
- A01C 15/002 . {with oscillating distributing spouts}
- A01C 15/003 . {Bulk fertiliser or grain handling in the field or on the farm}
- A01C 15/005 . {Undercarriages, tanks, hoppers, stirrers specially adapted for seeders or fertiliser distributors}
- A01C 15/006 . . {Hoppers}
- A01C 15/007 . . . {with agitators in the hopper}
- A01C 15/008 . . {Aprons; Deflecting plates; Band-spreading attachments}
- A01C 15/02 . for hand use {(hand sowing [A01C 7/02](#))}
- A01C 15/04 . using blowers
- A01C 15/06 . with distributing slots, {i.e. for dosing, e.g. adjustable openings}

- A01C 15/08 . . with pushers or stirrers in the slots
- A01C 15/10 . . . with reciprocating pushers {or stirrers in front of the slots (with endless chains [A01C 15/18](#))}
- A01C 15/12 . with movable parts of the receptacle
- A01C 15/122 . . {with moving floor parts (with endless chains [A01C 15/18](#))}
- A01C 15/124 . . {with adjustable shutters or slits}
- A01C 15/126 . . . {with pushers or stirrers in the slits}
- A01C 15/128 . . . {with pushers or stirrers in front of the slits (with endless chains [A01C 15/18](#))}
- A01C 15/14 . with means for lifting out the fertiliser {(feeding wheels, cell wheels, discs [A01C 7/12](#), bucket wheels [A01C 7/14](#))}
- A01C 15/16 . with means for pushing out the fertiliser, e.g. by a roller
- A01C 15/18 . with endless chains, {i.e. side transporting elements, e.g. auger or screw conveyers, swash plates}
- A01C 17/00** **Fertilisers or seeders with centrifugal wheels** ({hand-used implements [A01C 7/02](#), [A01C 15/02](#); fertiliser distributors [A01C 15/00](#); mechanical throwing machines for articles or solid bulk materials, in general [B65G 31/00](#); sand, gravel or salt spreaders [E01C 19/20](#))}
- A01C 17/001 . {Centrifugal throwing devices with a vertical axis}
- A01C 17/003 . {Centrifugal throwing devices with a horizontal axis}
- A01C 17/005 . {Driving mechanisms for the throwing devices}
- A01C 17/006 . {Regulating or dosing devices}
- A01C 17/008 . . {Devices controlling the quantity or the distribution pattern}
- A01C 19/00** **Arrangements for driving working parts of fertilisers or seeders** {(A01C 17/005 takes precedence)}
- A01C 19/02 . by a motor
- A01C 19/04 . by a ground-engaging wheel
- A01C 19/045 . . {the drive coupling being controlled by lifting or lowering of the seeding tools}
- A01C 21/00** **Methods of fertilizing, { sowing or planting}**{fertilisers C05; soil-conditioning or soil-stabilising materials [C09K 17/00](#)}
- A01C 21/002 . {Apparatus for sowing fertiliser; Fertiliser drill}
- A01C 21/005 . { Following a specific plan, e.g. pattern (precision agriculture in general [A01B 79/005](#); steering or guiding agricultural machines or implements [A01B 69/00](#))}
- A01C 21/007 . { Determining fertilization requirements}

- A01C 23/00** **Distributing devices specially adapted for liquid manure or other fertilising liquid, including ammonia, e.g. transport tanks, sprinkling wagons** (watering fields in general [A01G 25/00](#); spraying or applying liquids or other fluent materials in general [B05](#))
- A01C 23/001 . {Sludge spreaders, e.g. liquid manure spreaders}
 - A01C 23/002 .. {provided with auxiliary arrangements, e.g. pumps, agitators, cutters}
 - A01C 23/003 .. {Distributing devices, e.g. for rotating, throwing}
 - A01C 23/005 ... {Nozzles, valves, splash plates}
 - A01C 23/006 . {Distribution of liquid fertilisers by gravity flow (distribution of liquid ammonia in or on the soil [A01C 23/024](#); under pressure [A01C 23/04](#))}
 - A01C 23/007 . {Metering or regulating systems}
 - A01C 23/008 . {Tanks, chassis or related parts}
 - A01C 23/02 . Special arrangements for delivering the liquid directly into the soil
 - A01C 23/021 .. {Sludge injectors, i.e. liquid manure injectors}
 - A01C 23/022 ... {Continuous injection tools (devices for making drill or furrows [A01C 5/066](#))}
 - A01C 23/023 .. {for liquid or gas fertilisers}
 - A01C 23/024 ... {for ammonia}
 - A01C 23/025 ... {Continuous injection tools}
 - A01C 23/026 ... {Localised non-continuous injection tools, e.g. pal injectors, spike wheels}
 - A01C 23/027 .. {Other methods for delivering fertiliser into the soil (sowing granular fertiliser [A01C 21/002](#); subirrigation [A01G 25/06](#))}
 - A01C 23/028 ... {Contactless injection into the soil}
 - A01C 23/04 . Distributing under pressure; Distributing mud; Adaptation of watering systems for fertilising-liquids
 - A01C 23/042 .. {Adding fertiliser to watering systems (adding insecticides or herbicides [A01M 7/00](#))}
 - A01C 23/045 .. {Filling devices for liquid manure or slurry tanks (arrangements for connecting hoses of the quick-acting type [F16L 37/00](#))}
 - A01C 23/047 .. {Spraying of liquid fertilisers (gravity flow [A01C 23/006](#); watering gardens, fields, sports grounds or the like [A01G 25/00](#))}

 - A01C 2001/00** **Apparatus, or methods of use thereof, for testing or treating seed, roots, or the like, prior to sowing or planting** (chemicals therefor [A01N 25/00](#) to [A01N 65/00](#){ irradiation in general [B01J 19/08](#)})
 - A01C 2001/04 . Arranging seeds on carriers, e.g. on tapes, on cords { Carrier compositions}
 - A01C 2001/048 .. Machines